



Georgetown University Law Center
Scholarship @ GEORGETOWN LAW

2013

The Protected Profits Benchmark: Responses to Comments

Steven C. Salop

Georgetown University Law Center, salop@law.georgetown.edu

This paper can be downloaded free of charge from:
<https://scholarship.law.georgetown.edu/facpub/1283>
<http://ssrn.com/abstract=2333735>

79 Antitrust L.J. 701-714 (2013)

This open-access article is brought to you by the Georgetown Law Library. Posted with permission of the author.
Follow this and additional works at: <https://scholarship.law.georgetown.edu/facpub>



Part of the [Antitrust and Trade Regulation Commons](#), and the [Consumer Protection Law Commons](#)

THE PROTECTED PROFITS BENCHMARK: RESPONSES TO COMMENTS

STEVEN C. SALOP*

I am pleased to have this opportunity to respond to the thoughtful comments by Professor Richard Gilbert,¹ Dr. Su Sun,² and Dr. Timothy Tardiff³ on my article⁴ on refusals to deal and price squeezes. In my article in this *Journal*, I sought to clarify the proper price standard for determining whether or not a vertically integrated monopolist (VIM)⁵ is engaged in a refusal to deal or price squeeze in violation of Section 2 of the Sherman Act. The determination of the legal price standard for anticompetitive refusal to deal and price squeeze allegations is an important issue and one that has become seriously contorted in light of the Supreme Court's opinion in *linkLine*.⁶

In many cases, the proper price standard will be the price that the VIM charges other non-competing firms or previously charged the excluded competitor. However, where these market benchmarks do not exist or do not apply, I proposed the "Protected Profits Benchmark" (PPB) as an alternative price standard.⁷ Such a price involves profit-sacrifice, which suggests an-

* Professor of Economics and Law, Georgetown University Law Center; Senior Consultant, Charles River Associates. I would like to thank Greg Leonard, Serge Moresi, and Rich Gilbert for their helpful comments.

¹ Richard Gilbert, *The Protected Profits Benchmark: A Refusal to Deal Metric?*, 78 ANTITRUST L.J. 689 (2013).

² Su Sun, *The Protected Profits Benchmark: Precision Versus Administrability*, 78 ANTITRUST L.J. 703 (2013).

³ Timothy J. Tardiff, *The Protected Profits Benchmark: Input Price, Retail Price, or Both?*, 78 ANTITRUST L.J. 719 (2013).

⁴ Steven C. Salop, *Refusals to Deal and Price Squeezes by an Unregulated, Vertically Integrated Monopolist*, 76 ANTITRUST L.J. 709 (2010) [hereinafter Salop, *Refusals to Deal*].

⁵ Dr. Tardiff refers to the VIM as a VIP ("vertically integrated provider"). Tardiff, *supra* note 3, at 719. Dr. Sun refers to the VIM as a VIF ("vertically integrated firm"). Sun, *supra* note 2, at 703. I prefer VIM to stress the fact that the antitrust issue only arises if the defendant is a monopolist.

⁶ See *Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438 (2009).

⁷ See generally Salop, *Refusals to Deal*, *supra* note 4, at 720–23 (discussing the protected profits benchmark price).

R

R

ticompetitive animus.⁸ When products are homogeneous, a wholesale price that violates this price standard would exclude an equally efficient entrant. As a result, there will be less competition in the downstream (output) market in which the entrant is trying to compete. It also could lead to a reduced likelihood of future entry and competition in the input market.⁹ The PPB price standard is, therefore, a conservative starting point for an antitrust analysis that also requires the plaintiff to prove that the resulting refusal to deal or price squeeze would harm consumer welfare.¹⁰

The derivation of the paradigmatic version of the PPB can be illustrated with the following numerical example. Suppose that the VIM and entrant sell a homogeneous product. Suppose that they have the same technology, which uses one unit of the VIM's input for every unit of output produced. In this case, the PPB is equal to the well-known "Efficient Component Pricing Rule" (ECPR) sometimes used in regulation.¹¹

Suppose that the VIM initially prices its downstream product at the monopoly price of \$100. Suppose that the VIM produces an essential input at a variable cost of \$10 per unit and has downstream variable costs of \$30 per unit in addition to the costs of the input. Thus, the VIM has overall variable costs of producing the downstream product of \$40 per unit, which permits it

⁸ As the Court characterized the intent issue, "[T]he defendant's unwillingness to renew the ticket *even if compensated at the retail price* revealed a distinctly anticompetitive bent." *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004).

⁹ Justice Breyer focused on this latter concern at the *linkLine* oral argument. He raised the following question, based on the facts of *Alcoa*: "I mean, suppose you had no regulation at all involved. Why couldn't you have a monopolist at the primary stage, say, ingot, and what that monopolist wants to do is to extend its power into the secondary stage, say, fabrication, in order to make it less likely that there would be a new entries to attack its primary monopoly? That would—suppose you have those circumstances? Perhaps they would be rare, but if you have them, wouldn't that set forth a Section 2 violation?" Transcript of Oral Argument at 10–11, *linkLine*, 555 U.S. 438 (No. 07-512), available at http://www.supremecourt.gov/oral_arguments/argument_transcripts/07-512.pdf. Justice Breyer subsequently answered his own question: "I always thought there were circumstances, whether true of *Alcoa* or not, where that did make out the claim, namely, the one I suggested." *Id.* at 13 (emphasis added). Then, in response to the argument that the ingot monopolist has no duty to deal but has "the privilege to withdraw the supply," *id.* at 14, Justice Breyer replied, "Then I would say that shouldn't be the law. The reason it shouldn't be the law is because that ingot [monopolist] may, by either withdrawing or, in fact, raising his price way above a competitive level . . . is trying to drive out possible new entrants into the ingot stage of the business. And the fabricators are a number one [entrant] out there as possibilities to break down the monopolist in ingot." *Id.*

¹⁰ The Commenters note the results of a "total welfare" versus "consumer welfare" standard. See Gilbert, *supra* note 1, at 693, 700; Tardiff, *supra* note 3, at 726 n.23. There is an extensive literature on the proper legal standard that need not be reviewed here. For my views, see Steven C. Salop, *Exclusionary Conduct, Effect on Consumers, and the Flawed Profit-Sacrifice Standard*, 73 ANTITRUST L.J. 311, 329–31 (2006) [hereinafter Salop, *Exclusionary Conduct*]; and Steven C. Salop, *Question: What Is the Real and Proper Antitrust Welfare Standard? Answer: The True Consumer Welfare Standard*, 22 LOY. CONSUMER L. REV. 336, 336 (2010).

¹¹ See Salop, *Refusals to Deal*, *supra* note 4, at 719–20.

to earn a \$60 margin on the downstream product before entry. Suppose that an entrant into the downstream market appears on the scene and wishes to purchase the essential input from the VIM. Suppose that the entrant offers a price of \$72 and, after extended negotiations, the VIM says that it would not accept any price less than \$90. Should the court conclude that the VIM has refused to deal with the entrant or is engaging in a price squeeze? Suppose that the VIM sells the input to other non-competing firms but is able to convince the court that the prices it charges them should not be the basis for evaluating allegations regarding the new entrant.¹²

If the VIM were to sell a unit of the input to the entrant at an input price of \$70, the VIM also would earn a margin of \$60 (i.e., this input price less its \$10 input cost). The PPB price proposed in my article thus would be equal to \$70. If the VIM irrevocably refuses to accept an input price offer that exceeds the PPB price of \$70, as in the facts postulated above, that conduct would constitute a refusal to deal. Similarly, setting an input price above \$70, while charging the monopoly retail price of \$100, would constitute a price squeeze. An equally efficient entrant (i.e., one with identical other downstream costs of \$30) selling a homogeneous product would be unable to survive at this “excessive” input price.¹³ Absent other competition, or other efficiency benefits, this conduct would have anticompetitive effects. The VIM would be able to maintain its retail price at the monopoly level, as well as help preserve its input monopoly by reducing the likelihood of future entry there.

While the three Commenters focus on the areas in which we may differ, we all agree with the application of the PPB in this paradigmatic scenario. This exclusionary conduct by the monopolist would not only violate my PPB price standard but it also would violate Professor Gilbert’s three alternative price standards.¹⁴ It would not raise the administrability concerns raised by Dr. Sun because there are homogeneous products.¹⁵ Because the entrant and the VIM have the same technology, it also would not implicate the complications raised by Dr. Tardiff.¹⁶

Consider next the following even more extreme hypothetical example of exclusionary input pricing.¹⁷ Suppose that the VIM sets its wholesale price

¹² For example, suppose that the sales to others are pursuant to long term contracts agreed to many years ago or involve a somewhat different product. In these circumstances, the court might conclude that selling to the entrant is feasible but that these market prices are not appropriate pricing benchmarks.

¹³ The proper characterization of the conduct is that the input price is excessive, not that the output price is too low or even predatory.

¹⁴ Gilbert, *supra* note 1, at 692–98.

¹⁵ Sun, *supra* note 2, at 705–07.

¹⁶ Tardiff, *supra* note 3, at 723–26.

¹⁷ See generally Salop, *Refusals to Deal*, *supra* note 4.

above even its own retail price. Assuming the entrant and VIM use the input in identical proportions and sell homogeneous products, it is obvious that this price differential would involve profit-sacrifice and would not permit this equally efficient entrant to survive. Yet it is also a fact that the VIM's retail price could be high enough to more than cover its own costs. This means that it would not violate the below-cost pricing prong of the predatory pricing standard set out in *Brooke Group*.¹⁸

The Supreme Court in *linkLine* took a very different, indeed, essentially opposite position to this extreme example. It stated:

An upstream monopolist with no duty to deal is free to charge whatever wholesale price it would like; antitrust law does not forbid lawfully obtained monopolies from charging monopoly prices. . . . Similarly, the Sherman Act does not forbid—indeed, it *encourages*— aggressive price competition at the retail level, as long as the prices being charged are not predatory. . . . *If both the wholesale price and the retail price are independently lawful, there is no basis for imposing antitrust liability simply because a vertically integrated firm's wholesale price happens to be greater than or equal to its retail price.*¹⁹

As discussed in my article, the Court's reasoning is flawed.²⁰ As an economic matter, the high input price should not be treated as lawful. It destroys competition, raises barriers to entry, and involves profit-sacrifice. In *Trinko*, the Court cabined its refusal to deal claims primarily because of its legitimate concern with administrability.²¹ However, this administrability concern is misplaced when there is a workable price standard like the PPB. In the quote above, it is clearly administrable in the extreme scenario hypothesized by Chief Justice Roberts.²² Any court competent to evaluate predatory pricing claims under *Brooke Group* obviously would have no trouble determining whether or not the VIM's retail price is less than its wholesale price. Nor

¹⁸ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993); *see also supra* note 13.

¹⁹ *Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438, 454–55 (2009) (Roberts, Ch. J.) (emphasis added).

²⁰ Salop, *Refusals to Deal*, *supra* note 4, at 721 n.50.

²¹ The Court also raised a caution regarding the impact on innovation incentives. *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004). In its discussion, however, the Court failed to credit the innovation incentives benefits that arise from the fact that the entrant is more likely to enter the upstream market if it can obtain a toehold in the downstream market and the overarching fact that competition spurs innovation. *See id.* The Court also raised a caution regarding the potential for collusion. *Id.* at 408. But, neither of these concerns was likely to have been the key issue because the same concerns would arise if there had been a previous *voluntary* course of dealing. Indeed, fear of collusion and reduced innovation incentives would be more significant in this case.

²² *linkLine*, 555 U.S. at 454–55 (Roberts, Ch. J.). Nor does the freedom promised in *Colgate* apply when there is a "purpose to create or maintain a monopoly." *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919).

would a court competent to evaluate predatory pricing claims under *Brooke Group* find it difficult to evaluate whether the PPB is violated when the products are homogeneous. The PPB involves nothing more than a comparison of the VIM's prices and costs.

More fundamentally, the Court should not have analyzed this price squeeze allegation through the predatory pricing lens. The key economic issue for evaluating competitive effects is not that the VIM allegedly is arguably charging a retail price that is too low or predatory. To the contrary, the fundamental concern involves the fact that the VIM is setting an exclusionary high input price.

Conduct that raises rivals' costs by charging high input prices raises greater antitrust concerns than does charging low output prices that allegedly are predatory.²³ Predatory pricing allegations raise fewer concerns for several reasons: because consumers benefit from the alleged exclusionary conduct during the predatory phase; because the conduct sacrifices profits during the predatory phase; and, because the firm may be unable to recoup these losses during the predatory phase, in that the victim may not exit the market or other firms will expand when it tries to raise price.

In contrast, exclusionary conduct that raises the costs of competitors is more likely to succeed and consumers are more likely to be harmed for several reasons: because conduct that raises rivals' costs will lead to higher prices immediately, so that recoupment will occur simultaneously with the exclusionary phase; because the victim firm will raise price even if it does not exit, so that the conduct can lead to market power even in the absence of exit; and, because consumers will be harmed from those higher prices immediately, so there are no inherent short-term consumer benefits, as there are in predatory pricing. Because of these significant differences, raising rivals' costs and predatory pricing represent two distinct paradigms for the antitrust treatment of exclusionary conduct.²⁴

I. COMMENTERS' DISAGREEMENTS

I now turn to the areas in which the Commenters disagree with the analysis in my article. All three Commenters support the use of the PPB price standard in the situation where the excluded competitor has an identical technology and the two companies sell a homogeneous product. However, they take issue with the PPB when the entrant is more efficient, where it produces a differentiated product, or where its technology uses the input differentially from the VIM. Dr. Sun and Dr. Tardiff focus on administrability and calculation con-

²³ See Salop, *Exclusionary Conduct*, *supra* note 10, at 315–18.

²⁴ *Id.*

cerns in more complex fact situations. Professor Gilbert focuses on the benchmark itself.

A. THE ENTRANT IS A MORE EFFICIENT COMPETITOR

Suppose that the VIM and the entrant produce a homogenous product and each uses the same amount of the input in each unit of output. But suppose that the entrant has lower incremental costs for producing the downstream product than does the VIM. This is entry that antitrust law should wish to encourage. It has the potential to lead to particularly intense price competition in the downstream market that directly benefits consumers and induces the VIM to innovate to reduce its own costs. It also may lead to entry into the input market and thus competition for the monopoly input.

The PPB standard would force the VIM not to exceed the break-even price for an equally efficient competitor. This would permit the entrant to earn a margin over its costs at the VIM's pre-entry, monopoly retail price. As a result, it likely would induce the desired price competition and innovation. Absent the PPB, the VIM would like to charge a higher wholesale price, perhaps one so high that it would lead the entrant to break-even at a retail price equal to the VIM's pre-entry retail price, if not higher. That higher wholesale price would allow the VIM to extract some or all of the benefits of the entrant's greater efficiency. Relative to the PPB standard, the higher wholesale price would benefit the VIM but would harm consumers in the process. The PPB standard would not permit a wholesale price that extracts some but not all of the entrant's greater efficiency. To do so would reduce the amount of price competition.

This PPB would not violate Professor Gilbert's alternative metrics in this scenario. As discussed in more detail below, Professor Gilbert's metrics set a different legal standard for determining whether or not there is a refusal to deal by the VIM. Professor Gilbert focuses on the case of differentiated products. But, his metrics also can be applied to the case of a more efficient entrant selling a homogeneous product. His metrics would permit the VIM to charge an input price above the PPB in order to extract the entrant's greater efficiency. However, a higher input price would reduce or even eliminate any consumer welfare-enhancing price competition.

This result can be illustrated with a numerical example that follows from the example set out above.²⁵ Suppose now that the entrant is more efficient, with downstream costs of \$20, whereas the VIM has downstream costs of \$30. In this situation, a VIM that did not intend to destroy the entrant would

²⁵ Professor Gilbert uses the same example but reaches a different policy conclusion because his legal standard is different. See Gilbert, *supra* note 1, at 692 n.15.

have the incentive to charge an input price of \$80, exceeding the \$70 PPB. If demand were inelastic at this price, Professor Gilbert's metrics would permit the VIM to charge the \$80 input price.

At this higher input price, the entrant would capture the entire market at a retail price of \$100. Thus, the retail price would remain the same as the pre-entry price level. At this retail price of \$100 and input price of \$80, the VIM would earn a margin on its input sales equal to \$70 (i.e., $80 - 10$) per unit on the pre-entry level of sales. Relative to no entry, this would increase efficiency because the more efficient entrant would produce the output instead of the less efficient VIM. However, because the retail price would remain the same, consumers would obtain no benefits at all.²⁶

In contrast, suppose that the VIM were required to offer the input at a price no higher than the PPB price of \$70. In this situation, the entrant would have costs of \$90, not \$100. If the VIM charges \$100, the entrant would have the incentive to charge a retail price just (barely) below the VIM's retail price of \$100 and it would capture the entire market. In this case, the VIM would earn the margin of \$60 (i.e., $70 - 10$) on the demand $D(100)$, if the retail demand were elastic and given by the demand curve $D(P)$.

However, a foresighted VIM would not passively accept the entrant capturing the entire market at this \$100 price. A *rational VIM would realize that it could cut its retail price in order to induce the entrant to further cut its own price*. In this way, the VIM could induce the entrant to charge a lower retail price, where the VIM would make more input sales at the \$60 margin from the PPB, assuming some demand elasticity.²⁷ For example, suppose that the VIM were to cut its price and charge (say) \$98. If the entrant did not undercut the VIM, the VIM would capture the market and its profits would fall. But the more efficient entrant would have the incentive to further undercut the VIM and charge a lower price of (say) \$97. In this way, the VIM would sell more units of the input.

The VIM would have the incentive to cut its retail price down to (slightly more than) \$90. In the limit, the entrant would undercut to charge a retail

²⁶ This discussion implicitly assumes perfectly inelastic demand. If demand has some elasticity, the VIM would choose a somewhat lower input price, but one that generally exceeds the PPB. For example, if the VIM acquired the entrant, its variable costs would fall from \$40 down to \$30. If the VIM faced a linear demand curve, for example, this \$10 variable cost reduction would lead the VIM to reduce its retail price by half the cost decrease, from \$100 down to \$95. Absent the acquisition, Professor Gilbert's VIM could achieve the same outcome by charging an input price equal to \$75.

²⁷ This assumes that demand is not perfectly inelastic.

price of (virtually) \$90.²⁸ The VIM now would sell $D(90)$ units of the input and earn a margin of \$60 on each unit.²⁹ Thus, the VIM's profits would be higher than if it ceded the entire market to the entrant at the retail price of \$100 because it would be selling more units of the input at the \$70 PPB input price.³⁰ If the VIM continues to lower its price until the entrant's price is driven down (virtually to or) equal to its costs of \$90, consumers also would gain. Consumers would benefit because price would be lower (i.e., virtually \$90 instead of \$100) and total output would be higher.³¹

In summary, Professor Gilbert's first two metrics would permit the VIM to charge a higher input price (of \$75 or even \$80 in the example) to a more efficient entrant.³² But these alternative metrics would lead to lower consumer welfare than does the PPB. In this situation, market efficiency under Professor Gilbert's metrics also would be lower than achieved by the PPB because market output is lower and prices are further in excess of costs.

This analysis might raise the question of whether the VIM's retail price reductions might be viewed as predatory. However, this strategy of cutting its output price in order to induce the entrant to lower its price to meet (and beat) the lower price competition does not involve profit-sacrifice.³³ The lower price would maximize the VIM's profits, given the PPB pricing constraint. The lower price also would not entail below-cost pricing that might violate the *Brooke Group* standard. In the example, a \$90 retail price still would remain far above the VIM's variable costs of \$40. When there are differentiated prod-

²⁸ The VIM realizes that if it sets any price $P_{vim} > 90$, then the more efficient entrant would have the incentive to charge a slightly lower price $P_{vim} - e$, where $e > 0$ is small. In the limit, the VIM can induce the entrant to charge a price virtually equal to \$90.

²⁹ The \$90 output price likely also is lower than the price the VIM likely would have charged if it had acquired the entrant instead of attempting to destroy it, as explained in note 19 *supra* and accompanying text. With linear demand, the VIM would have charged a retail price of \$95.

³⁰ Professor Gilbert's Appendix assumes differentiated products, not homogeneous products, so it does not really apply to this scenario. Gilbert, *supra* note 1, at 701. However, the underlying model seems to contemplate a simple Nash equilibrium where the VIM and the entrant set their prices simultaneously. In contrast, the VIM modeled here sets its price, anticipating the response of the more efficient entrant. As a dominant firm, the VIM would have that capability and incentive to take the entrant's response into account, particularly if the PPB standard applied.

³¹ As another example, suppose that the VIM faced entry by two homogeneous entrants, each with downstream costs of \$20. In that scenario, the post-entry competitive retail price would equal the input price plus \$20. Thus, under the PPB, the retail price would be \$90. In contrast, if the VIM charged an input price of \$80, the retail price would be \$100. If the VIM charged an input price of \$75, the retail price would be \$95. This example was suggested by Professor Gilbert in our correspondence.

³² In a private communication, Professor Gilbert has said that his third metric produces a benchmark price less than or equal to \$80 in this example and could be less than the PPB of \$70 if demand is sufficiently elastic.

³³ The price cuts by the sophisticated VIM raise an interesting issue about profit sacrifice. The VIM would be sacrificing profits if it actually captured the retail market. But, it does not. Knowing that the more efficient entrant will undercut it, the VIM is actually maximizing profits.

ucts, there similarly could be price responses, as sketched out in Dr. Tardiff's comment. In his interesting analysis, Dr. Tardiff suggests that these price responses would not lead to the VIM violating the price squeeze standard.³⁴

Dr. Sun stresses administrability concerns in his Comment. In this regard, the use of Professor Gilbert's alternative metrics lead to a potential administrability concern in the situation (that he does not analyze), where the entrant's costs are different from the VIM's and its costs are not common knowledge. A VIM that wants to demand a higher input price can merely claim that it believes that the entrant is more efficient than is the VIM. Absent further information, any input price could be defended on this basis. In order to evaluate the VIM's claim in court, the court would need to determine the VIM's expectation of the entrant's costs and the reasonableness of this expectation.³⁵

The PPB standard avoids this administrability issue because it involves only a comparison of the VIM's prices and costs. This is similar to the approach in predatory pricing cases. Although some commentators may suggest that the goal of the price/cost comparison is a desire to protect the potential for entry by an equally efficient competitor, that consideration is not the driving force. Entry into a monopoly market by a less efficient competitor also will cause prices to fall below the monopoly level and consumers to benefit. Instead, the fundamental rationale of the below-cost pricing prong is to serve as a bright line test of whether or not the defendant's pricing reveals an "anticompetitive bent," as the Court phrased the issue in *Trinko*.³⁶

B. DIFFERENTIATED PRODUCTS

When the products of the VIM and the entrant are differentiated, but the two firms have identical costs and the same per unit input usage, the concept of an equally efficient competitor becomes a knottier issue. The entrant is seen as more efficient by the consumers that prefer its product at equal prices, while the VIM is considered more efficient by the consumers that prefer its product at equal prices. Competitive interaction also is somewhat more complicated when the products are differentiated.

In this scenario, if the VIM charges an input price equal to the \$70 PPB price that would occur when the products were homogeneous, the entrant will have variable costs of \$100 and will charge a price above \$100. However,

³⁴ Tardiff, *supra* note 3, at 725–26.

³⁵ A similar issue can arise in bundled discount cases. See, for example, *Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883, 905 (9th Cir. 2008), as noted by Sun, *supra* note 2, at 706.

³⁶ *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004).

because its product is differentiated, the entrant will be able to earn a positive margin and survive.³⁷ The entry may lead the VIM to lower or raise its own retail price, depending on the effect of the entry on its elasticity of demand. However, that entry likely raises consumer welfare.

This PPB of \$70 does not properly reflect the VIM's opportunity cost of selling the input rather than selling the downstream output itself. Because the products are differentiated, if the VIM sells one more unit of the input to the entrant, it would not lose an entire unit of output. Some of the entrant's incremental sales would come at the expense of other products. In order to equalize the VIM's margin from selling the input to the new competitor and its opportunity cost of selling the downstream output itself, the PPB would be determined as follows:³⁸

$$PPB = \text{VIM's input cost} + \text{Div} \times [\text{VIM's retail price} - \text{VIM's input and other downstream cost}]$$

To illustrate, suppose that we have the previous \$100 retail price, VIM input cost of \$10 and VIM other downstream cost of \$30. Suppose further that the diversion ratio (*Div*) between the VIM's and entrant's cost is 90 percent. With these facts, the PPB would be \$64 (i.e., $\$10 + 90\% \times (\$100 - \$40) = \64), instead of the \$70 PPB that obtained when the products were assumed to be homogenous. This PPB would lead to more price competition than would the \$70 input price.

Product differentiation increases the complexity of the analysis in several ways. It implicates the issue of the proper metric, as stressed by Professor Gilbert, and discussed above with respect to the case of the more efficient entrant. It also raises an administrability issue, as stressed by Dr. Sun. It also raises an issue of the applicability of the analysis when the products are not close substitutes, as noted by both Professor Gilbert and Dr. Sun. I will discuss each of these issues in turn. Product differentiation also raises the issue of the price responses by the VIM, as noted by Dr. Tardiff and as I have already discussed above.

1. *The Proper Antitrust Price Benchmark*

Professor Gilbert's analysis of differentiated products raises the same issue about the proper price benchmark that was discussed above with respect to the scenario of the more efficient entrant that produces a homogenous product. The PPB standard does not permit the VIM to choose the input price that

³⁷ This assumes that the entrant has zero or sufficiently low fixed costs, an assumption the Commenters and I have made for most of our comparative analysis.

³⁸ See Salop, *Refusals to Deal*, *supra* note 4, at 729.

would be chosen by a hypothetical VIM that does not intend to deter the entry of the entrant, *but has the goal of raising the entrant's costs in order to maintain a higher downstream price*.³⁹ Professor Gilbert's metric would permit the VIM legally to raise rivals' costs in order to maintain its monopoly power. In my view, this exclusionary conduct should not be lawful, even if it is rational for the hypothetical VIM that Professor Gilbert considers.⁴⁰ The incentive of this hypothetical VIM to raise its competitor's cost reduces consumer welfare, even if it would not cause the entrant to exit or be fully deterred from entering the downstream market.

The PPB intentionally does not "protect" the VIM from the reduction in profits that flows from post-entry price competition between the VIM and the entrant. The PPB only compensates the VIM for the lost profits on sales lost to the competitor. It does not compensate the VIM for the reduced profits from the lower price on the sales it retains after the entry. This is because this latter component of the profit reduction results from price competition that the antitrust laws should encourage.

In *Trinko*, the Court raised the concern that "[t]he opportunity to charge monopoly prices—at least for a short period—is what attracts 'business acumen' in the first place [because] it induces risk taking that produces innovation and economic growth."⁴¹ That is the rationale for compensating the VIM for the opportunity cost of output sales lost from supplying the input to the entrant. But there is also the parallel risk that overly permissive Section 2 standards might reduce the monopolist's incentives to innovate and invest. As Judge Hand recognized in *Alcoa*, "Immunity from competition is a narcotic, and rivalry is a stimulant, to industrial progress."⁴²

A comprehensive economic analysis must also consider the effects on the incentives of the VIM's rivals as well as the VIM in order to evaluate the likely effect on consumers. The PPB was formulated to strike the proper balance among these long run incentive issues along with the direct impact of the conduct on short-term consumer welfare. For this reason, the PPB does not compensate the VIM for the impact of price competition on its profits. In this way, the PPB standard protects consumers and the competitive process. The

³⁹ In Professor Gilbert's equation (A.1), the last term on the right-hand side expresses the impact of the "rais[ing] rivals' costs" goal on the profit-maximizing input price. Gilbert, *supra* note 1, at 702.

⁴⁰ Dr. Sun runs simulations that show that the ECPR better reflects the incentives of Professor Gilbert's hypothetical VIM than does the PPB. See Sun, *supra* note 2, 709–13. However, these simulations are not on point, in my view, because the incentives of the hypothetical VIM do not signal wise antitrust policy.

⁴¹ *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004).

⁴² *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 427 (2d Cir. 1945).

antitrust laws are designed for the protection of consumers and the competitive process, not monopolists.

2. *Highly Differentiated Non-Competing Products*

Professor Gilbert criticizes the use of the PPB when products are differentiated for another reason. The calculation of the PPB could lead to anomalous results if the products were so highly differentiated that they would be viewed as essentially non-competitive. For example, as Professor Gilbert points out, if the diversion ratio between the two products were zero, then the PPB would equal the VIM's input cost.⁴³ I agree that a court should not apply these refusal to deal and price squeeze standards to a VIM's sales to a customer that does not compete with the VIM. In that situation, the VIM would have no anticompetitive incentive to exclude the entrant. For the same reason, however, the fact that the PPB equals cost does not raise any practical, real world concerns. Because the products are not competing, the VIM could not be found liable for using the refusal to deal or price squeeze to maintain its monopoly.

This practical point is recognized by both Dr. Sun and Dr. Tardiff, who note that there can only be antitrust liability where the firms are sufficiently close competitors.⁴⁴ Thus, in order to prevail, the plaintiff must show that the entrant and VIM are close enough substitutes to be viewed as substantial competitors in the same market. In my view, a reasonable starting point would require a showing of a diversion ratio of 80 to 90 percent.⁴⁵ As a result, this potential anomaly actually would not raise significant practical concerns.

3. *Administrability Concerns*

There is a more significant administrability issue because the degree of product differentiation would have to be gauged by the VIM and the court. Dr. Sun correctly points out that it sometimes may be difficult for the VIM or the court to estimate the degree of product differentiation. This is a particular concern if the entrant's product does not even exist at the time it approaches the VIM, so that the degree of differentiation is still unclear and there are no market shares that can be used to estimate proportional diversion.⁴⁶ Antitrust also may not wish to encourage the entrant and the VIM to discuss the entrant's new product. I agree that this is a valid concern.

⁴³ Gilbert, *supra* note 1, at 694 n.22.

⁴⁴ See Sun, *supra* note 2, at 705; Tardiff, *supra* note 3, at 722 n.8 (citing PHILLIP E. AREEDA & HERBERT HOVENKAMP, *FUNDAMENTALS OF ANTITRUST LAW* 7-83 to 7-85 (4th ed. 2011)).

⁴⁵ Salop, *Refusals to Deal*, *supra* note 4, at 731.

⁴⁶ See Sun, *supra* note 2, at 705.

Dr. Sun suggests that the court should use a PPB standard based on the assumption of homogeneous products in order to deal with this informational issue. While this homogenous product PPB standard is the simplest option and has these advantages, it is not necessarily the only or best option in every case. Sometimes the rate of differentiation will be known in advance by both parties. Where the diversion ratio is not known, a court might apply a presumption that the products are modestly differentiated instead of the more extreme assumption of perfect homogeneity. Because few products in the modern economy are perfectly homogeneous, this might provide a more accurate estimate and lead to a more procompetitive outcome for consumers.

B. DIFFERENTIAL INPUT USAGE

Dr. Tardiff raises the issue that the VIM and the entrant may have different per unit usage of the VIM's input.⁴⁷ This differential usage raises a complexity that I did not consider in my analysis of the PPB. Suppose that the entrant and the VIM sell a homogeneous product. However, suppose now that the entrant uses the input less intensely than does the VIM. For example, suppose that the entrant uses one-half of one unit of the input for every unit of output, whereas the VIM uses one unit of the input for every unit of the output. In this situation, the PPB would be adjusted upwards to reflect the VIM's opportunity cost of selling the input instead of the downstream output.

As noted by Dr. Tardiff, this adjustment can have a substantial effect on the PPB level. In extreme cases, it could even lead to a nominal PPB that exceeds the retail price.⁴⁸ To illustrate, suppose that the entrant has half the per-unit usage as the VIM. In that situation, the PPB would rise from \$70 per unit up to \$130 per unit in the basic example we have been discussing. By selling one unit of output at \$100, the VIM would earn a margin \$60. In order to recover this \$60 from selling one-half unit of the input to the entrant, the VIM would need to charge a price of \$65 for the half-unit (which has a cost of \$5), or \$130 per whole unit.⁴⁹ Thus, the adjustment of the PPB for differential input usage is simple to make. The relevant PPB for the half-unit would be \$65 when the retail monopoly price is \$100.

However, despite this higher input price, an otherwise equally efficient competitor would not be deterred from entering the market. It would still have lower per unit costs than the VIM as a result of its increased usage efficiency. The entrant specifically would have costs of \$95, comprised of \$65 for the one-half unit of the input plus the \$30 other costs. This is less than the \$100

⁴⁷ Tardiff, *supra* note 3, at 723–24.

⁴⁸ This is not applicable to the language in the *linkLine* opinion because there was equal usage of the input. *Pac. Bell Tel. Co. v. linkLine Commc'ns, Inc.*, 555 U.S. 438, 442 (2009).

⁴⁹ Tardiff, *supra* note 3, at 724.

per unit cost of the equally efficient entrant selling a homogeneous product. Thus, the analysis of the more efficient entrant discussed above would apply.

As further noted by Dr. Tardiff, this adjustment also raises an administrability issue. This issue is analogous to the administrability issue of the more efficient competitor discussed above. A VIM could defend its setting an excessively high input price on the grounds that it expected the entrant to be a more efficient user of the input. As discussed above, it might be difficult for a court to evaluate this claim. I agree that this provides a reasonable administrability rationale for presuming equal usage intensity of the input by the entrant and the VIM.⁵⁰

II. CONCLUSION

While we disagree on some issues, we all seem to agree that *per se* legality is not the appropriate legal rule for alleged refusals to deal and price squeezes. We also all agree that there are administrable price standards that can be used to aid courts in these exclusionary conduct cases. We also all support the use of the PPB standard when it is equal to the ECPR, as occurs when the entrant sells a homogenous product and produces with equal input usage and equal costs. Where we differ is the implementation of the price benchmark in situations where the entrant is more efficient, or where the entrant sells a differentiated product, or where input usage differs. In light of the extreme current stance of the Supreme Court in *Trinko* and *linkLine*, I believe that our agreements are far more germane and significant than are our disagreements about implementation of the proper price benchmark.

⁵⁰ The equality presumption is the first part of Dr. Tardiff's two-part recommendation. In the second part, he proposes a more detailed examination that could result in an adjustment to the input price. *See id.*